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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/415,121	10/08/1999	TAKESHI KOBAYASHI	10873.444US	4355

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EXAMINER

CHANG, RICK KILTAE

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 03/07/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/415,121

Applicant(s)

KOBAYASHI ET AL.

Examiner

Rick K. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 17 January 2003 is: a) ☐ approved b) ☒ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Drawings

1. The proposed drawing correction filed on 1/17/03 has been disapproved because it is not in the form of a pen-and-ink sketch showing changes in red ink or with the changes otherwise highlighted. See MPEP § 608.02(v).
2. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 1/17/03 have been disapproved because they introduce new matter into the drawings. 37 CFR 1.121(a)(6) states that no amendment may introduce new matter into the disclosure of an application. The original disclosure does not support the showing of elements 91 and 92 as shown in Figs. 4A-4B. In Fig. 4A, elements 91 and 92 are touching elements 10 and 20, but in Fig. 4B, they are not. In addition, element 90 in Fig. 4A covers a small area, but in Fig. 4B, element 90 covers a large area. Furthermore, the disclosure, as originally filed, fails to provide support that elements 91 and 92 are two separate pieces.

NOTE: Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

Specification

3. Abstract has been disapproved because the applicants failed to provide support as indicated by Paragraph No. 10 in the last Office Action.
4. The amendment filed 1/17/03 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new

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matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: “toards”, “in Fig. 1 and by direction arrow 93 in Fig. 4B”, “and as shown in Figsures 4A and 4B”, and “shown in Figs. 4A and 4B as upper die 91 and lower die 92”.

Applicant is required to cancel the new matter in the reply to this Office Action.

NOTE: Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohsawa et al (US 5,349,238) in view of Steffen et al (US 4,857,483), and further in view of Kinsman et al (US 6,277,225).

Ohsawa discloses placing a die (1) on an element placement pad (6) having a thickness (Fig. 1A), a bending depth (Fig. 1A), an S shape of a first lead (Fig. 1A), a thickness T of the resin (the area below 1 in Fig. 1A has thickness less than the bending depth d), lead pitches (80 μm), inner leads are substantially uniform (Fig. 1B), an electronic component thickness is substantially the same as the first lead thickness (Fig. 1A), and a bending radius R is at least .05

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mm and is no greater than the lead thickness t (since the thickness of the lead is $30\text{ }\mu\text{m}$ and no greater than t).

Ohsawa fails to disclose injecting a sealing resin in the die from a position on a longer side of the package, the dimensions of the resin are each no greater than 1 mm, and the resin containing a filler with particle diameter not greater than the bending depth d .

Steffen discloses injecting a sealing resin in the die from a position on a longer side of the package (Fig. 8) in a direction substantially parallel to a surface of the element placement pad (Fig. 9 shows resin is being injected through 72 parallel to 74, which is also parallel to 20) thereby evenly distributing the resin to better protect the die from the environment.

Kinsman discloses the resin containing a filler (130) with particle diameter not greater than the bending depth d (Figs. 5A-5B) thereby locking the resin to the leads to prevent premature delamination.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ohsawa by injecting a sealing resin in the die from a position on a longer side of the package in a direction substantially parallel to a surface of the element placement pad, as taught by Steffen, for the purpose of evenly distributing the resin to better protect the die from the environment.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ohsawa by providing the resin containing a filler with particle diameter not greater than the bending depth d , as taught by Kinsman, for the purpose of locking the resin to the leads to prevent premature delamination.

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It would have been obvious to one of ordinary skill in the art as a matter of design choice to provide the dimensions of the sealing resin to no greater than 1 mm to each dimension to the Ohsawa reference for the purpose of miniaturizing a semiconductor device to increase functionality of a printed circuit board.

NOTE: Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

Response to Arguments

7. Applicant's arguments filed 1/17/03 have been fully considered but they are not persuasive.

Please consult above for drawings and abstract.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., an electronic element is placed on an element placement pad of a first lead) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

See above for Steffen reference.

Re Kinsman, 130 diameter is not greater than half the bending depth d of the first lead
112.

NOTE: Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

Interviews After Final

8. Applicant note that an interview after a final rejection will not be granted unless the intended purpose and content of the interview is presented briefly, in writing (the agenda of the interview must be in writing) to clarify issues for appeal requiring only nominal further consideration. Interviews merely to restate arguments of record or to discuss new limitations will be denied. See MPEP 714.13 and 713.09.

Conclusion

9. Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

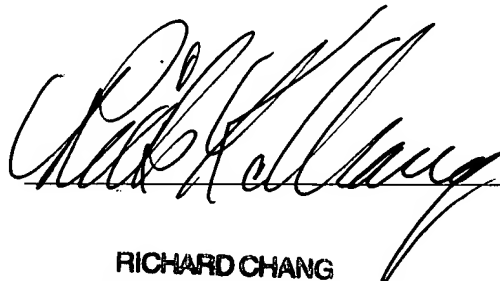
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (703) 308-4784. The examiner can normally be reached on 5:30 AM to 1:30 PM, Monday through Friday, except for maxi-flex day off (any one of working days).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (703) 308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.



RICHARD CHANG
PRIMARY EXAMINER

RC
March 6, 2003